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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/064,549

07/25/2002

Harry Israel Ringermacher

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05/28/2004

GENERAL ELECTRIC COMPANY  
GLOBAL RESEARCH  
PATENT DOCKET RM. BLDG. K1-4A59  
SCHENECTADY, NY 12301-0008

EXAMINER

KALIVODA, CHRISTOPHER M

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 05/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/064,549

Applicant(s)

RINGERMACHER ET AL.

Examiner

Christopher M. Kalivoda

Art Unit

2881

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Response to Office Action on 3/11/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/2/02 and 6/12/03
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to the restriction are persuasive and all claims will be examined. The restriction is accordingly withdrawn.

### ***Claim Objections***

2. Claim 21 is objected to because of the following informalities: There appears to be a missing word "is" at the end of line 1. Appropriate correction is required.

### ***Specification***

3. The disclosure is objected to because of the following informalities: There appears to be a typographical error on page 13, para 0042, 3 lines from the bottom. Specifically, the radiation source is referenced using reference sign 300 but 300 is also used to represent the fuselage. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "flexible" in claims 1-41 is a relative term which renders the claim indefinite. The term "flexible" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. From the specification, it appears the Applicant has in mind a degree of flexibility not included in the claims. While many imaging devices are fabricated using a glass substrate can be considered to be somewhat flexible.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 24 - 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Bueno et al. U.S. Patent 6,614,872. The applied reference has a common assignee and inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the

inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding independent claim 24, Bueno et al. anticipate a digital imaging method comprising conforming a flexible digital imager to the subject (col 4, lines 16-19 and Fig 4), the subject positioned between the flexible digital imager and a radiation source (Fig 1, ref sign 30, 16 and 32), activating the radiation source and collecting an image (col 2, lines 2-7).

Regarding dependent claims 25-30, the photosensors can be either a linear array or a two dimensional array (col 4, lines 45-47) and the radiation source is x-rays (col 4, lines 33-35 and 39-41). The flexible image is conformed different parts of the aircraft including the fuselage (col 1, lines 17-20) and wing (Fig 4).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7, 9-15, 19 - 23 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kingsley et al. U.S. Patent 5,587,591 in view of the technical

publication "Active-Matrix Pixelized Well Detectors on Polyimide Substrates" by Huang et al. Regarding independent claims 1, 15 and 39, Kingsley et al. teach an imaging device comprising a photosensor array (Fig 1B, ref sign 120) disposed on a substrate (Fig 1A, ref sign 110), a scintillator (Fig. 1A, ref sign 190) disposed to as to receive and absorb incident radiation, configured to convert the incident radiation to optical photons, and optically coupled to said photosensor array wherein said photosensor array is configured to receive the optical photons and to generate an electrical signal corresponding to the optical photons (col 3, lines 8-17). The photosensor array comprises a plurality of photosensors (Fig 1B, ref sign 120) and an addressable TFT array arranged to form a plurality of columns and at least one row, each TFT coupled to a respective photosensor (col 3, lines 62-67 and col 4, lines 1-2). There is a source to expose the subject to x-ray radiation (col 3, lines 49-51 and Fig 1A, ref sign 75) to collect an image.

Regarding dependent claims 9-14 and 19-23, Kingsley et al. teach the photosensor array comprises a plurality of TFTs (optically transparent) coupled to each photosensor so as to address each sensor in the array (col 3, lines 62-67 and col 4, lines 1-2). Each of the TFT contains a gate, source and drain electrode. The semiconductive region comprises amorphous silicon and a layer doped amorphous silicon over the layer of amorphous silicon (col 4, lines 57-67 and col 5, lines 1-3). The semiconductive region can also be organic. The TFT array is also located between the substrate and photosensors and there is a coating layer (col 5, lines 12-16). The

scintillator comprises cesium iodide (col 3, lines 55-61) and phosphor screens are an art recognized equivalent.

However, the reference is silent with respect to a flexible substrate.

Huang et al. describe flexible substrates for use with imaging sensors (Abstract lines 5-11) capable of detecting x-rays.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Kingsley et al. and incorporate a flexible substrate as taught by Huang et al. to detect x-rays.

The motivation for such an improvement would be to reduce weight, rigidity and fragility (see Abstract lines 4-5) and focus as much radiation as possible onto the detector.

Regarding dependent claims 2-5 and 7, the Huang et al. teach the use of a substrate which is made of a flexible organic polymer comprising polyimide (page 477, para 2, lines 1-2 and lines 19-23) with 2 mils thickness (page 477, para 4, lines 5-6).

The substrate has a back surface.

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**Conclusion**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Kalivoda whose telephone number is (571) 272-2476. The examiner can normally be reached on Monday - Friday (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Chris Kalivoda*

Chris Kalivoda  
AU 2881  
May 25, 2004

*Nikita Wells*

NIKITA WELLS  
PRIMARY EXAMINER

05/26/04